

DIGITAL FIAT CURRENCY**CROSS-REFERENCE TO RELATED APPLICATIONS**

[0001] This application is a Non-Provisional application and claims benefit of priority of U.S. Provisional Application No. 62/758,430, filed Nov. 9, 2018, the entire contents of which is incorporated herein by reference for all purposes.

BACKGROUND

[0002] A cryptocurrency is a digital or virtual currency designed to work as a medium of exchange. Conventional cryptocurrencies use cryptography to secure and verify transactions as well as to control the creation of new units of a particular cryptocurrency.

[0003] Many cryptocurrencies are decentralized. Typical cryptocurrency infrastructures use nodes to generate and validate transactions without one node having more control than any other node.

[0004] Cryptocurrency systems have advantages over fiat currency systems. For example, cryptocurrency money transfers can also be faster than conventional fiat currency money transfers. Lastly, because some cryptocurrencies use blockchains, such cryptocurrencies are often trusted since blockchains are immutable records of transactions.

[0005] While cryptocurrencies have advantages, they are generally not subject to regulation like fiat currencies. Further, it is not practical for governments to wholly convert their fiat currency systems entirely to cryptocurrencies, since cryptocurrencies require the use of electronic devices. Some segment of the population of a country may not have electronic devices so a complete conversion of fiat currencies to cryptocurrencies is not practical.

[0006] Embodiments of the invention address this and other problems, both individually and collectively.

BRIEF SUMMARY

[0007] Embodiments provide a digital fiat currency system for managing digital fiat currency generated based on physical currency. Embodiments provide a private permissioned distributed ledger platform for managing the digital currency. The digital currency may be recorded to a blockchain in association with data such as a serial number of a corresponding physical currency, allowing a central entity to manage the volume and value of the digital currency.

[0008] In some embodiments, a computer-implemented method may include receiving, by a central entity computer, a request for digital currency, the request comprising a serial number and a denomination of a physical currency; generating, by the central entity computer, the digital currency for the denomination and linked to the serial number, wherein the generating comprises recording the digital currency on a blockchain; transmitting, by the central entity computer, a notification of the generation of the digital currency; and causing, by the central entity computer, removal of the physical currency from circulation in a fiat currency system.

[0009] In some embodiments, the method may further include associating the digital currency with a digital wallet using a private key stored to the digital wallet. In some embodiments, the private key of the digital wallet is stored on a chip of a smart card or a secure element of a user device.

[0010] In some embodiments, the method may further include receiving, by the central entity computer from a

transaction processing network, a trusted certificate for the central entity computer, and using the trusted certificate to generate the digital currency. In some embodiments, prior to transmitting the notification of the generation of the digital currency, the recording of the digital currency on the blockchain is validated by a plurality of validating entities. In some embodiments, the digital currency is recorded on the blockchain using a public key of the central entity computer. In some embodiments, causing the removal of the physical currency from circulation includes physically destroying the physical currency, the physical currency being fiat currency.

[0011] In some embodiments, the request for digital currency is a first request and the physical currency is a first physical currency, and the method further includes receiving, by the central entity computer, a second request for digital currency, the second request comprising a serial number and a denomination of a second physical currency, wherein the serial number and the denomination of the second physical currency are the same as the serial number and the denomination of the first physical currency; determining, by the central entity computer, that the digital currency corresponding to the serial number and denomination is already recorded on the blockchain; and refraining from generating a second digital currency based on the second request.

[0012] In some embodiments, the blockchain includes a plurality of blocks, at least one block, of the plurality of blocks, storing data for a plurality of transactions, the plurality of transactions including a first record indicating that the digital currency for an amount associated with the denomination has been created for public key associated with a digital wallet. In some embodiments, the blockchain includes a plurality of blocks, at least one block, of the plurality of blocks, storing data for a plurality of transactions, the plurality of transactions including a second record recording the removal of the physical currency from circulation. In some embodiments, recording the digital currency on the blockchain generates a record in a block in the blockchain, the record comprising a currency type of the physical currency and the serial number of the physical currency.

[0013] In some embodiments, a central entity computer includes a processor; and a non-transitory computer-readable medium comprising code, executable by the processor, for implementing a method comprising: receiving, by the central entity computer, a request for digital currency, the request comprising a serial number and a denomination of a physical currency; generating, by the central entity computer, the digital currency for the denomination and linked to the serial number, wherein the generating comprises recording the digital currency on a blockchain; transmitting, by the central entity computer, a notification of the generation of the digital currency; and causing, by the central entity computer, removal of the physical currency from circulation in a fiat currency system.

[0014] In some embodiments, a computer-implemented method includes receiving, by a blockchain node storing a blockchain, a request to record an action relating to removal of physical currency with a denomination from a fiat currency system; recording, by the blockchain node, a record of the action relating to the removal of the physical currency with the denomination from the fiat currency system to the blockchain; receiving, by the blockchain node, a request to record digital currency in an amount equal to the denomi-